

C-6.9 Explain how the use of a titration can determine the concentration of acid and base solutions

Revised Taxonomy Levels 2.7 B Explain conceptual knowledge

Students did not study this concept in physical science

It is essential for students to

- ❖ Write neutralization equations for the reaction between common selected strong acids and strong bases.
 - (See C-6.14)
- ❖ Explain the process of titration.
- ❖ Explain how indicators are used in titration
- ❖ Use data from the titration of a strong acid by a strong base to identify the equivalence point and the concentration of the acid.
- ❖ Analyze the titration curve of a strong acid/strong base reaction and compare the sensitivity of pH change to volume of titrant added

Assessment

The verb, explain means that the major focus of assessment should be for students to “construct a cause and effect model.” In this case, assessments will ensure that students can show the effect that increasing quantities of a strong base have on the pH of a strong acid. Because the indicator is written as conceptual knowledge, assessments should require that students understand the “interrelationships among the basic elements within a larger structure that enable them to function together.” In this case, assessments should show that students can construct a cause and effect statement relating how the process of titration can show the equivalence point of the reaction and can therefore be used to determine the concentration of the acid (or the base)